

Work Order ID 61107

August 6, 2010 11:02:00 AM



Page 1

Item ID: D412-664-203

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft

Start Date: 8/06/10 Start Qty: 1.00



Cust Item ID:

Required Date: 8/13/10 Req'd Qty: 1.00



Customer:

Reference: RA111015 - RETURN

Approvals: Process Plan: *[Signature]*

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

Draw Nbr

Revision Nbr

D412-664-243

E

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D412-664-203 CHG 006

8/6/10

*KJ for CL 10-8-12
(Red+White Labels only)*

230

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

REMOVE CHAMFER SHIELD & CLAMPS
REMOVE ABRASION STRIPS
RE-INSTALL NEW ABRASION STRIP
D2856-600-1009 B *37668*
RE-INSTALL ORIGINAL CHAMFER SHIELDS & CLAMPS

IT 10-08-11

| | | | |
|--|--|--------------------|-----|
| DART | | | |
| Dart Aerospace Ltd. 1270 ABERDEEN ST. HAWKESBURY, ON, CANADA K6A 1K7 | | | |
| P/N | | D412-664-203 | CHG |
| DESC. | | Crosstube Aft High | STC |
| LOT | | B41154 | STC |
| MODEL | | Bell 412 | STC |
| | | CHG006 | |
| | | SH01-9 | |
| | | SR01298NY | |
| | | | |

MADE IN CANADA D2729-1

TC APPROVAL # 09-89

TEL: 1-613-632-5200

Work Order ID 61107

August 6, 2010 11:02:01 AM



Page 3

Item ID: D412-664-203

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft

Start Date: 8/06/10 Start Qty: 1.00



Cust Item ID:

Required Date: 8/13/10 Req'd Qty: 1.00



Customer:

Reference: RA111015

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|---|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
| 270 | Packaging | 0.00 | | | | | | | |
| Packaging | | | | | | | | | |
| Packaging | | | | | | | | | |
| | Memo RE-PACKAGE PER PPP USING NEW B/N NEW LABELS AND PAPERWORK REQ'D 8/10/12 CHG006 | 0.00 | | | | | | | |
| 280 | QC21- Final Inspection - Work Order Release | 0.00 | | | | | | | |
| QC Quality Control | Memo | 0.00 | | | | | | | |

Rev H

Rec 103

10/08/12 sf

10/08/13 sf

MF 10-8-13

Picklist Print

August 6, 2010 11:01:58 AM

Page 1

Work Order ID: 61107

Parent Item: D412-664-203

Parent Item Name: Crosstube Aft



Start Date: 8/06/10

Required Date: 8/13/10

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:E 04.02.16 Reformat; Added D3189-1 K/DS
 IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
 IPP Rev:G 06.12.08 per ECN 886 EC
 IPP Rev:H 07-04-30 As per Rev D JLM
 IPP Rev:I 08-06-12 add comment in seq. 21 DD verified by:EC

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---------------------------------|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| D2856-600 | | Manufactured | No | | | 230 | f | 164.5091 | 1.76 | 1.76 | | | |



Abrasion Strip



BT 10-08-11

| Location | Loc Qty | Loc Code |
|----------|----------|----------|
| ST | 2.24 | |
| 37668 | 2.24 | |
| ST403 | 162.2691 | |
| 25656 | 1.25 | |
| 26650 | 2.5 | |
| 37668 | 158.5191 | |

D412-664-203

Manufactured No

Each

8.0000

1



Crosstube Aft



r 1.76

B41154 x1

BT 10-08-11

| Location | Loc Qty | Loc Code |
|----------|---------|----------|
| FG | 1 | |
| 40749 | 1 | |
| 58174 | 1 | |
| 58187 | 1 | |
| FG103 | 5 | |
| 58188 | 1 | |
| 59522 | 1 | |
| 59523 | 1 | |
| 60525 | 1 | |
| 60526 | 1 | |

ORIGINAL B/N 41154

| Item | Qty -243 | Part Number | Description |
|------|-------------|----------------|---|
| 1 | X | D412-664-243 | CROSSTUBE ASSEMBLY (412 HIGH AFT) |
| 2 | 1 | D6009-129 | CROSSTUBE |
| 3 | 2 | D3595-063-570 | RUBBER CUSHION |
| 4 | 1 | D2896-1 | SUPPORT |
| 5 | 2 | D3189-1 | CHAFING SHIELD |
| 6 | 2 | D2856-600-1009 | ABRASION STRIP |
| 7 | 4 | MS21920-28 | CLAMP |
| 8 | 2 | MS21920-30 | CLAMP (OR MS21920-32) |
| 9 | A/R | MAGNOBOND 6398 | ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE) |

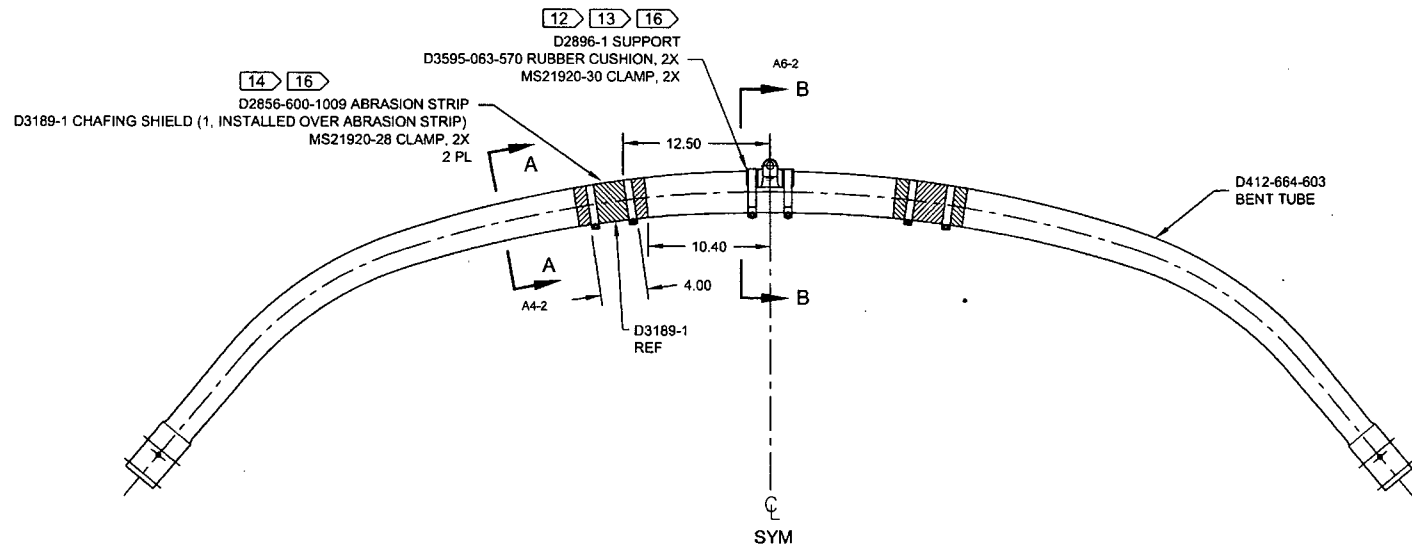
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6009-129
FINISHED LENGTH = 124.100±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 47.0 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

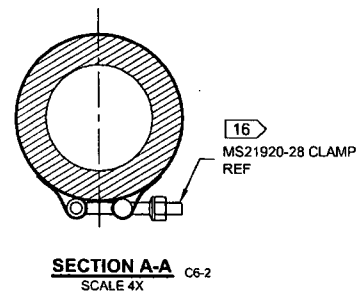
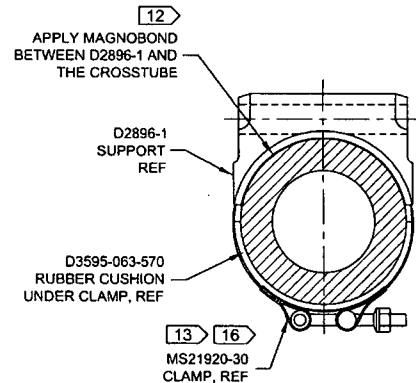
w/o b407

RELEASED
2009-10-29

| | | | |
|------------|--|--|--------------|
| E | REFORMAT/REVISE GENERAL NOTES; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); ADD TOLERANCE (ZN B6-3, C4-3, C8-3 & C5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4. | RF | 09.09.30 |
| D | REMOVE D2732-058, CHANGE TO D3595-063-570 | PH | 07.03.09 |
| C | REMOVE D2856-600-1087, ADD D2732-058 & MAGNOBOND 6398, MS21920-32 WAS MS21920-30 | MB | 06.10.27 |
| B | ADD HOLES FOR COMPATABILITY WITH BHT/AA SKID TUBES | PH | 05.02.04 |
| A | NEW ISSUE | PH | 01.10.17 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | PH | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | RF | DRAWING NO. | REV. E |
| CHECKED | PH | D412-664-243 | SHEET 1 OF 4 |
| MFG. APPR. | PH | TITLE | SCALE |
| APPROVED | PH | CROSSTUBE ASSEMBLY (412 HI AFT) | NTS |
| DE APPR. | PH | COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. | |
| DATE | 09.09.30 | | |



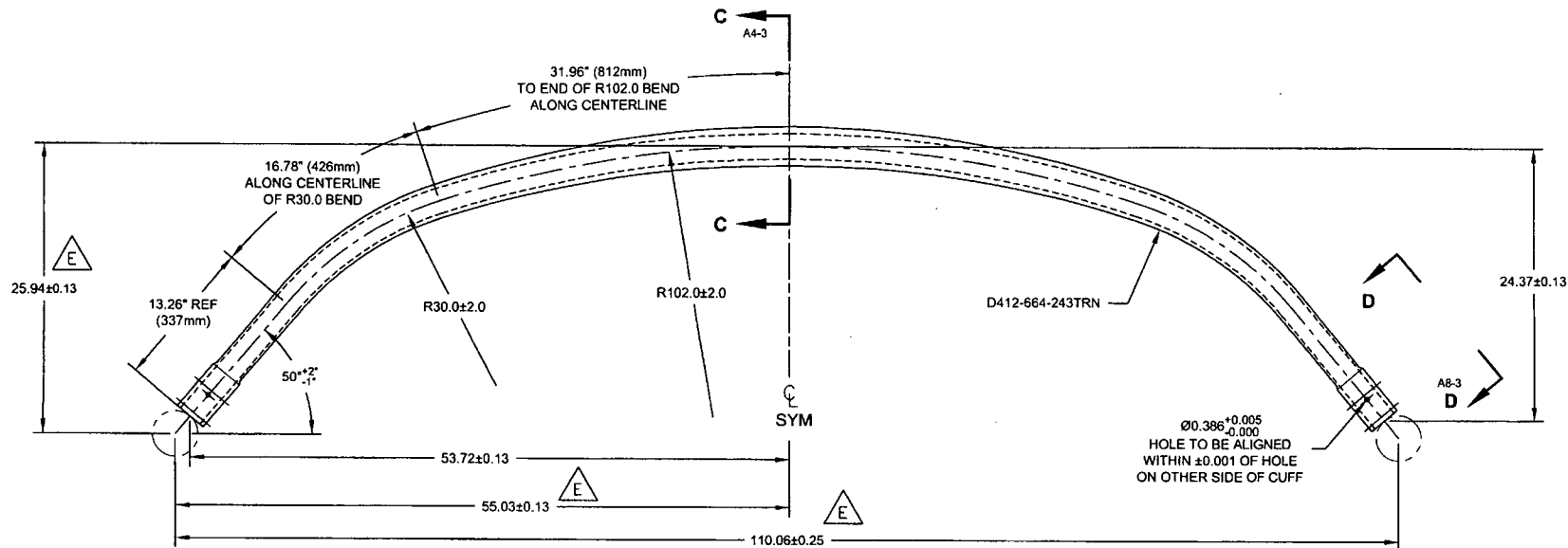
D212-664-243
ASSEMBLY DETAIL



RELEASED
2009-10-28
MP

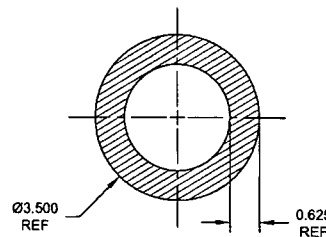
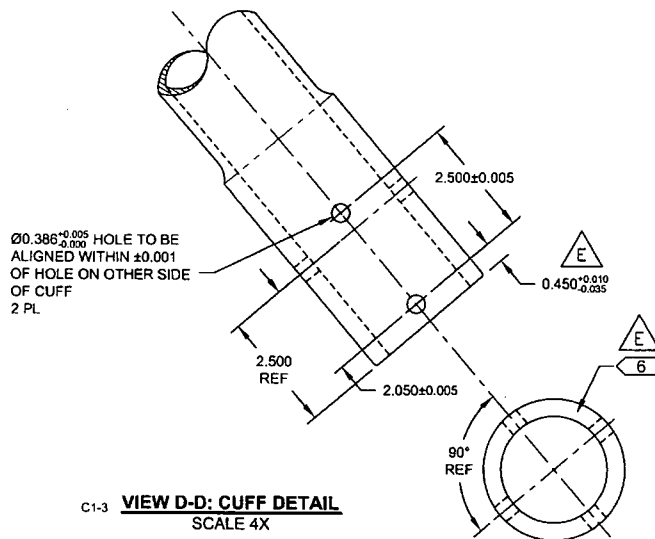
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|------------|-----------|---|---------------------|
| DESIGN | <i>PH</i> | DART AEROSPACE LTD | |
| DRAWN | RF | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | <i>PS</i> | DRAWING NO. D412-664-243 | REV. E SHEET 2 OF 4 |
| MFG. APPR. | <i>PS</i> | TITLE | SCALE |
| APPROVED | <i>PS</i> | CROSSTUBE ASSEMBLY (412 HI AFT) NTS | |
| DE APPR. | <i>PS</i> | | |
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8 7 6 5 4 3 2 1



D412-664-603 10
BENDING AND DRILLING DETAIL

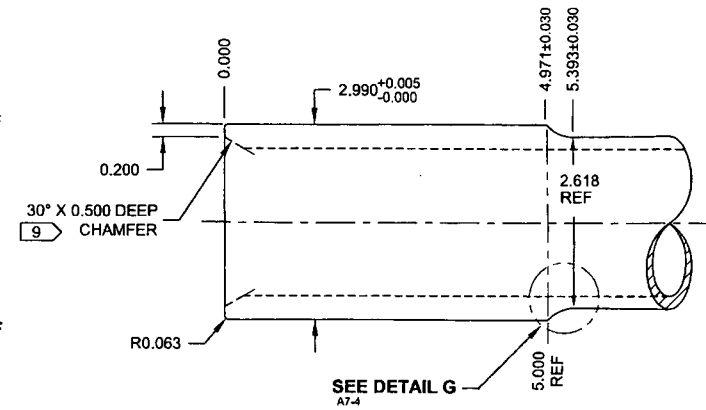
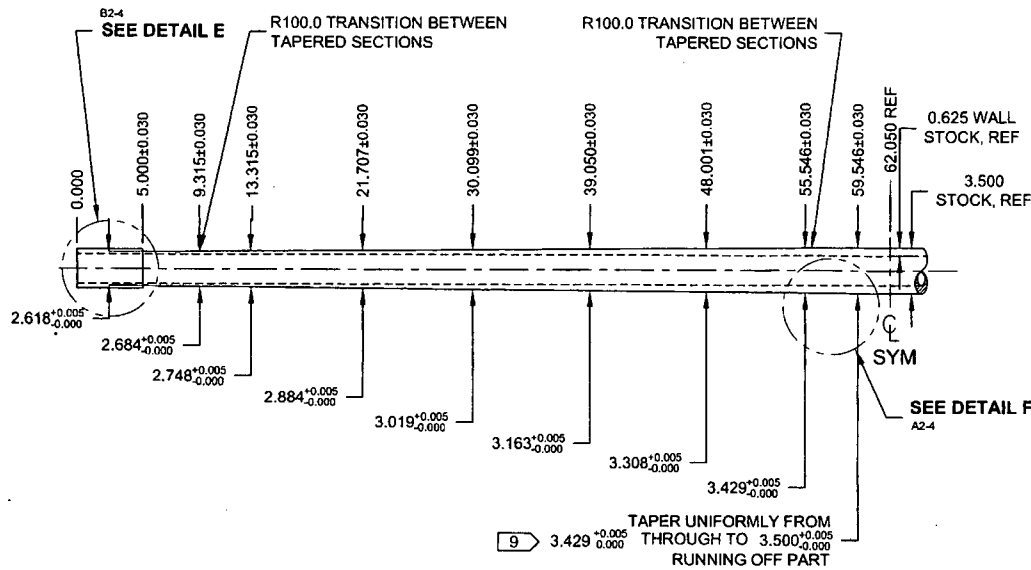
61107



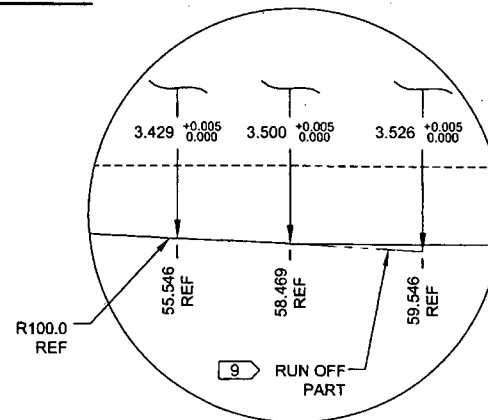
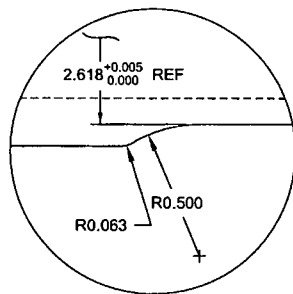
RELEASED
2009-10-29
MP

| | | | |
|------------|----------|---|--------------|
| DESIGN | PH | DART AEROSPACE LTD | |
| DRAWN | RF | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | Q | DRAWING NO. | REV. E |
| MFG. APPR. | S | D412-664-243 | SHEET 3 OF 4 |
| APPROVED | 10 | TITLE | SCALE |
| DE APPR. | -4 | CROSSTUBE ASSEMBLY (412 HI AFT) NTS | |
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8 7 6 5 4 3 2 1



D412-664-243TRN
TURNING DETAIL



6607

RELEASED
2009-10-29
NTP

| | | | |
|------------|----------|--|--------------|
| DESIGN | PH | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | RF | | |
| CHECKED | Q | DRAWING NO. | REV. E |
| MFG. APPR. | LS | D412-664-243 | SHEET 4 OF 4 |
| APPROVED | AP | TITLE | SCALE |
| DE APPR. | TH | CROSSTUBE ASSEMBLY (412 HI AFT) | NTS |
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D4D-664-203

B 41154

CHG 006

- lit complete. Paper work good.
- needs new Abrasin strips

RAHOS

DCS inspect Refrain + lit

661109

*tasks. - Remove chomfor shield + clamps

- Remove Abrasin strips.

- install new # Abrasin strips

B#

- re install original chomfor shield + clamps

DCS inspect work to correct steps

Druckin creat new labels (red + white)

CHG 006

DCS ensure original lit is accurate.

OPP

RA21